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Docket No. F-9191

Ser. No. 10/593,014

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1 - 67. (Canceled)

68. (Currently Amended) A method for grinding bearings and cams of an assembled camshaft, comprising:

chucking on a grinding machine an assembled camshaft which comprises a steel tube and includes a bend to be eliminated by straightening,

grinding [[a]] bearings and cams of the assembled camshaft on [[a]] said grinding machine; and

straightening the assembled camshaft on said grinding machine, wherein the straightening comprises subjecting the camshaft in an area to pressure beyond a yield point of steel of said steel tube using a straightening device mounted to said grinding machine.

69.(Previously Presented) The method according to claim 68, wherein:
the grinding comprises:

finish grinding the bearings; and

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rough grinding and finish grinding the cams; and
the straightening is subsequent to the finish grinding of the bearings and/or
the rough grinding of the cams and/or the finish grinding of the cams.

70. (Previously Presented) The method according to claim 69, wherein said
finish grinding of the bearings and said rough grinding and said finish grinding of
the cams are carried out in a single chucking.

71. (Previously Presented) The method according to claim 69 or 70,
wherein the rough grinding of the bearing is carried out at a first station of the
grinding machine and the rough grinding and the finish grinding of the cams are
carried out at a second station of the grinding machine.

72. (Previously Presented) The method according to claim 69 or 71, further
comprising supporting the camshaft during grinding of the bearings by bringing
supports into engagement with the camshaft in a vicinity of the bearings and
disengaging the supports from the camshaft for the straightening.

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73. (Previously Presented) The method according to claim 72 wherein the engaging of the camshafts with the supports is carried out after the rough grinding of the cams and before finish grinding of the cams.

74. (Previously Presented) The method according to claim 72, wherein the supporting of the camshaft during the grinding of the bearings and the disengaging of the supports from the camshaft for the straightening comprise engaging at least a center area of the camshaft with the supports during rough grinding of the cams, then, prior to the straightening, disengaging the supports from at least a center area of the camshaft for the straightening, thereafter again bringing the supports into engagement with the camshaft in the vicinity of the bearings and carrying out the finish grinding of the cams.

75. (Currently Amended) The method according to claim 68, further comprising, prior to the straightening, measuring a concentricity value or concentricity deviation value for at least one bearing in a center area of the cams using a measuring device mounted on a grinding headstock, and effecting said straightening by providing a straightening device on said grinding headstock, positioning said straightening device using said grinding headstock, applying said

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straightening device to the camshaft in the area to apply said pressure to said steel tube.

76. (Previously Presented) The method according to claim 75, wherein the straightening is carried out based on a measured concentricity value or concentricity deviation value.

77. (Previously Presented) The method according to claim 68 further comprising rotating the camshaft at 50 to 200 revolutions per minute during the straightening.

78. (Previously Presented) The method according to claim 76 or 77, further comprising applying compressive force to the camshaft in an area of a center bearing thereof during straightening.

79. (Previously Presented) The method according to claim 76, wherein the straightening is carried out while the cam-shaft is stationary and a bearing having a greatest deviation from concentricity is determined as a least concentric bearing and a compressive force is applied to said least concentric bearing in a radial direc-

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tion at a circumferential position at which the greatest deviation from concentricity occurs.

80. (Previously Presented) The method according to claim 71, wherein the straightening is carried out at the first station.

81. (Previously Presented) The method according to claim 71, wherein the straightening is carried out at the second station.

82. (Currently Amended) An apparatus for grinding bearings and/or cams of an assembled camshaft and straightening the assembled camshaft, comprising:

a grinding machine;

said grinding machine including a straightening device for straightening the assembled crankshaft between and/or after grinding;

said grinding machine including a concentricity measuring device for measuring concentricity or concentricity deviation of said camshaft;

said grinding machine further comprising a machine bed, a grinding headstock mounted to the machine bed, at least two grinding wheels each mounted for pivoting into a grinding position;

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said grinding machine having a workpiece headstock and a workpiece tailstock each having a center between which centers the camshaft is fixable; and
said concentricity measuring device being ~~attached to~~ being mounted to said grinding headstock or to said machine bed and said straightening device being ~~attached to~~ being mounted on said grinding headstock.

83. (Previously Presented) The apparatus according to claim 82, wherein said grinding machine further comprises a first station and a second station.

84. (Previously Presented) The apparatus according to claim 83, wherein said first station comprises a station for finish grinding said bearings.

85. (Previously Presented) The apparatus according to claim 83, wherein said first station comprises a station for finish grinding said bearings and rough grinding said cams.

86. (Previously Presented) The apparatus according to claim 84 or 85, wherein said straightening device is arranged in said first station.

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87. (Previously Presented) The apparatus according to claim 83, wherein said second station comprises a station for rough grinding and/or finish grinding said cams.

88. (Previously Presented) The apparatus according to claim 83 or 87, wherein said straightening device is arranged in said second station.

89. (Previously Presented) The apparatus according to claim 82, wherein the straightening device comprises a roll straightening head comprising at least one roller which engages the camshaft and the apparatus further comprises a drive for rotating the camshaft while the roll straightening head is in engagement with the camshaft.

90. (Currently Amended) The apparatus according to claim 89, wherein the roll straightening head is attached to the grinding headstock and comprises two rollers for engaging the camshaft.

91. (Previously Presented) The apparatus according to claim 82 or 83, wherein the straightening device comprises a pressure element for engaging the camshaft with straightening force while the camshaft is not rotated.

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92. (Previously Presented) The apparatus according to claim 91, wherein the pressure element is of prismatic shape having a recess for receiving one of the bearings of the camshaft and engaging said one bearing with straightening force at at least two circumferentially spaced locations.

93. (Previously Presented) The apparatus according to claim 91, wherein the pressure element has a substantially flat surface for engaging the camshaft with straightening force at one location.